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U.S. Department of the Interior • U.S. Geological Survey

# MINERAL INDUSTRY SURVEYS

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Tungsten, Monthly

## TUNGSTEN IN JULY 1996

Based upon net production of intermediate tungsten products, including metal powder and tungsten carbide powder produced from hydrogen reduced metal powder, the U.S. industrial tungsten activity for July 1996 decreased about 3% compared with that of June 1996, according to the U.S. Geological Survey. U.S. industrial tungsten activity for the first 7 months of 1996 was 1% higher than for the same period of 1995. Reported consumption of tungsten in all end-use products through July 1996 increased by approximately 2% compared with reported consumption of tungsten through the same period of 1995.

June 1996 trade data are included in this issue. Trade data for July 1996 will appear in a subsequent issue.

The combined wolframite and scheelite prices from Metal Bulletin were:

Low \$45/mtu  $\text{WO}_3$  (\$40.82/stu  $\text{WO}_3$ ), August 1-31, 1996

High \$55/mtu  $\text{WO}_3$  (\$49.90/stu  $\text{WO}_3$ ), August 1-31, 1996

Update.--A cold-forming technology was recently described at the 1996 World Congress on Powder Metallurgy and Particulate Materials in Washington, D.C. The technology uses a patented, one-step technique to coat copper onto tungsten powder at ambient temperature. The powders are then pressed to net shape and 100% density to meet the need for a high-temperature, heat-spreading material. This cold-forming process imparts very close tolerances and 100% density without sintering. (Advanced Materials & Processes, p. 11, September 1996.)

TABLE 1  
U.S. SALIENT TUNGSTEN STATISTICS 1/

(Metric tons, tungsten content)

Period	Concentrate			Reported scrap consumption	Intermediate products		
	Reported consumption	Imports for consumption	Stocks, end of period 2/		Net produc- tion 3/	Reported consumption 4/	Stocks, end of period 5/
1995: p/							
January-December	6,320	4,180	631	2,350	8,190	11,900	1,290
1996:							
January	479	310	486	261	718	993	1,220
February	475	162	438	186	933	1,000	1,360
March	504	155	559	223	845	957	1,440
April	580 r/	148	694 r/	236 r/	787 r/	973	1,510 r/
May	465 r/	403	904 r/	229 r/	758 r/	1,030	1,590 r/
June	553 r/	365	1,120 r/	223 r/	506 r/	980	1,580 r/
July	566	NA	1,170	220	489	959	1,560
Total	3,620	1,540	XX	1,580	5,040	6,900	XX

p/ Preliminary. r/ Revised. NA Not available. XX Not applicable.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Reported by consumers.

3/ Net production of tungsten metal powder, tungsten carbide powder, chemicals, and other products.

4/ Includes data on tungsten carbide powder from secondary sources.

5/ Reported by producers.

TABLE 2  
U.S. PRODUCTION, CONSUMPTION, AND STOCKS OF  
AMMONIUM PARATUNGSTATE, BY MONTH 1/

(Metric tons, tungsten content)

Period	Production	Consumption	Stocks, end of period 2/
1995: p/			
January-December	2,580 3/	7,690	338
1996:			
January	565	598	370
February	W	630	366
March	556	782	357
April	W	742 r/	319 r/
May	W	589 r/	444 r/
June	W	517 r/	658 r/
July	W	534	940
Total	1,120	4,390	XX

p/ Preliminary. r/ Revised. W Withheld to avoid disclosing company proprietary data.

XX Not applicable.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Producers and consumers.

3/ Excludes seven months of withheld data.

TABLE 3  
U.S. PRODUCTION AND STOCKS OF TUNGSTEN PRODUCTS 1/

(Metric tons, tungsten content)

Product	Net production 2/			Stocks at end of period	
	1995 p/	1996		1995 p/	1996
		July	Year to date		July
Metal powder	2,910	177	2,570	818	998
Tungsten carbide powder (made from metal powder)	5,280	312	2,460	348	437
Cast and crystalline carbide powder; other	W	--	--	W	W
Chemicals	W	W	W	126	124
Total	8,190	489	5,040	1,290	1,560

p/ Preliminary. W Withheld to avoid disclosing company proprietary data.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Gross production less quantity used to make other products in table.

TABLE 4  
U.S. REPORTED CONSUMPTION, BY END USE, AND CONSUMER STOCKS OF TUNGSTEN PRODUCTS IN JULY 1996 1/

(Metric tons, tungsten content)

End use	Ferro- tungsten	Tungsten metal powder	Tungsten carbide powder	Scheelite (natural, synthetic)	Tungsten scrap 2/	Other tungsten materials 3/	Total	Total year to date
Steel:								
Stainless and heat-resisting	W	--	--	--	W	--	W	W
Alloy	1	--	--	--	--	--	1	11
Tool	17	--	--	--	--	--	17	102
Total	18	--	--	--	W	--	18	113
Superalloys	--	W	2	--	15	--	17	128
Alloys (excludes steels and superalloys):								
Cutting and wear-resistant materials	--	W	562	--	W	W	562	3870
Other alloys 4/	--	W	W	--	W	--	W	1
Mill products made from metal powder	--	W	--	--	--	--	W	360
Chemical and ceramic uses	--	W	W	--	--	W	W	W
Miscellaneous and unspecified	5	31	318	--	W	8	362	2430
Total	23	31	882 5/	--	15	8	959	XX
Total consumption, year to date	198	469	6100 5/	--	106	24	--	6900
Stocks, July 31, 1996	41	33	498 5/	1	32	15	620	XX

W Withheld to avoid disclosing company proprietary data. XX Not applicable.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Does not include that used in making primary tungsten products.

3/ Includes tungsten chemicals.

4/ Includes welding and hard-facing rods and materials and nonferrous alloys.

5/ Based on reported consumption plus information from secondary sources; includes estimates.

TABLE 5  
U.S. IMPORTS FOR CONSUMPTION OF TUNGSTEN, BY COUNTRY 1/

(Metric tons, tungsten content)

Period and country of origin	Con- cen- trate	Ammonium tungstates	Ferro- tungsten	Lumps, grains, powders	Tungsten carbide	Other e/ 2/	Total	Total year to date
1995:								
Total	4,180	1,290	652	312	476	3,260	10,200	XX
1996:								
April	148	43	81	31	15	122	440	XX
May	403	73	80	108	21	280	964	XX
June:								
Australia	--	--	--	--	--	--	--	3
Austria	--	--	--	--	--	2	2	8
Belgium	--	--	--	1	--	--	1	2
Bolivia	49	--	--	--	--	--	49	277
Canada	--	--	--	1	2	(3/)	3	28
China	--	63	--	--	11	236	310	2,090
Czech Republic	--	--	--	3	--	--	3	9
Germany	--	--	--	5	3	2	10	120
Hong Kong	--	--	--	--	1	(3/)	1	153
Hungary	--	--	--	--	--	1	1	4
Israel	--	--	--	--	--	1	1	5
Japan	--	--	--	1	(3/)	5	6	44
Kazakstan	80	--	--	--	--	--	80	80
Korea, Republic of	--	--	--	--	--	--	--	6
Mexico	14	--	--	--	--	(3/)	14	45
Netherlands	--	--	--	--	--	1	1	54
Peru	--	--	--	--	--	--	--	239
Portugal	71	--	--	--	--	--	71	152
Russia	22	--	15	--	--	1	38	717
Sweden	--	--	--	5	--	(3/)	5	18
Switzerland	--	--	--	--	--	(3/)	(3/)	2
Thailand	11	--	--	--	--	--	11	11
United Kingdom	120	--	--	--	--	1	121	350
Uzbekistan	--	--	--	--	--	--	--	30
Total	365	63	15	16	18	249	726	XX
Total, year to date	1,540	718	310	224	163	1,490	XX	4,450

e/ Tungsten content estimated in part. XX Not applicable.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Includes calcium, potassium, and sodium tungstates, mixtures and materials in chief value tungsten, tungsten oxide, tungstic acid, unwrought ingots and shot, other unwrought tungsten and materials, wrought tungsten, and other tungsten compounds.

3/ Less than 1/2 unit.

Note: Imports of waste and scrap in June 1996 totaled 206 metric tons, tungsten content.

Source: Bureau of the Census.

TABLE 6  
U.S. EXPORTS OF TUNGSTEN, BY COUNTRY 1/

(Metric tons, tungsten content)

Period and country of destination	Con- cen- trate	Ammonium tungstates	Metal powder e/	Tungsten carbide	Other e/ 2/	Total	Total year to date
1995:							
Total	5	238	484	1,670	369	2,760	XX
1996:							
April	--	30	26	94	28	178	XX
May	6	--	35	75	19	136	XX
June:							
Argentina	--	--	--	--	(3/)	(3/)	1
Australia	--	--	(3/)	1	(3/)	2	9
Austria	--	--	--	7	--	7	18
Belgium	--	--	--	(3/)	1	1	4
Brazil	--	--	--	(3/)	(3/)	(3/)	5
Canada	--	--	3	26	2	31	238
China	2	--	--	1	(3/)	3	23
France	--	--	(3/)	3	18	21	43
Germany	--	--	4	74	1	79	271
Honduras	--	--	--	--	--	--	18
Hong Kong	(3/)	--	--	--	1	1	5
India	--	--	--	--	1	1	8
Ireland	--	--	--	1	--	1	3
Israel	--	--	14	1	(3/)	15	35
Italy	--	--	--	12	(3/)	12	63
Japan	(3/)	17	(3/)	1	2	20	100
Korea, Republic of	--	--	--	1	(3/)	1	8
Luxembourg	--	--	--	2	--	2	10
Mexico	--	--	(3/)	1	2	3	20
Netherlands	--	--	2	2	(3/)	--	7
Portugal	--	--	--	1	--	1	1
Singapore	--	--	--	(3/)	(3/)	(3/)	15
South Africa	--	--	--	1	(3/)	1	15
Spain	--	--	--	--	2	2	5
Sweden	--	--	(3/)	5	(3/)	5	53
Switzerland	--	--	--	(3/)	(3/)	(3/)	4
Taiwan	--	--	1	1	3	5	31
United Kingdom	(3/)	--	(3/)	33	2	35	74
Venezuela	--	--	--	--	(3/)	(3/)	2
Total	3	17	25	173	34	252	XX
Total, year to date	16	66	139	706	166	XX	1,090

e/ Tungsten content estimated in part. XX Not applicable.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Includes calcium, potassium, and sodium tungstates, mixtures and materials in chief value tungsten, tungstic acid, unwrought ingots and shot, other unwrought tungsten and materials, wrought tungsten, and other tungsten compounds.

3/ Less than 1/2 unit.

Note: Exports of waste and scrap in June 1996 totaled 39 metric tons, tungsten content.

Source: Bureau of the Census.